



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,450	10/27/2004	Yatsuhari Yokota	031265	6160

23850 7590 10/23/2006

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

ABOAGYE, MICHAEL

ART UNIT	PAPER NUMBER
----------	--------------

1725

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/511,450

Applicant(s)

YOKOTA, YATSUHARI

Examiner

Michael Aboagye

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/27/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 05/16/06, 08/04/05, 03/01/05, 10/27/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirofumi et al. (JP 07-015120).

Hirofumi et al. discloses a reflow soldering apparatus comprising a conveyor ("4", figure 1, translation) to transport circuit boards mounted with electronic components ("3", figure 1, translation) into multiple chambers (1; 2, 3, figure 1, of translation) and blowing means (6, 8, 11, figure 1, translation) installed in said chambers, wherein the centers of the impellers in said adjacent blowing means are not on a single horizontal plane and arrayed offset up and down (6, 8, 11, figure 1, translation); blowing means are not on a single perpendicular plane along a transport line of said conveyor and arrayed offset to the left and right (6, 8, 11, figure 1, of translation); wherein said blowing means are arrayed left and right in a zigzag pattern along the transport line of said conveyor. Note the blowing means ("6, 8, 11", of translation) shown in figure 1 have different heights, therefore their centers are on different horizontal plane relative to the conveyor surface, thus indicating an up and down offset. Secondly the blowers are positioned on different perpendicular line relative to the horizontal plane defined by

Art Unit: 1725

plane of travel of the conveyor, hence such arrangement defines a zigzag array by viewing from the plane of the conveyor upwards.

3. Claim 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Okuno et al. (US Patent No. 5,154,338).

Okuno et al discloses reflow soldering apparatus comprising a conveyor ("2", figure 1) to transport circuit boards mounted with electronic components into multiple chambers (zones, P, R and C, figure 1, and column 4, lines 15-20), and blowing means installed in said chambers, wherein the centers of the impellers in said adjacent blowing means are not on a single perpendicular plane along a transport line of said conveyor and arrayed offset to the left and right; wherein said blowing means ("17", figure 1, abstract, column 5, lines 15-29). Note the left and right offset arrangement of the blower "17" in figure 1 depicting a zigzag pattern along the transport line of said conveyor.

4. Claim 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Arata et al. (JP 11-186707).

Arata et al. discloses a reflow soldering apparatus comprising a conveyor ("16", figure 1) to transport circuit boards mounted with electronic components into multiple chambers (preheat "10", reflow "12" and cooling "14", figure 1, translation) and blowing means (14A, 14B) installed in said chambers; wherein said blowing means are adjustable in all directions (paragraph [0032]); wherein said blowing means are installed above and below said conveyor (14A, 14B, figure 8, translation), and the rotating shafts of said upper and lower blowing means are arranged diagonally in different directions

Art Unit: 1725

(Abstract; paragraph [0032]). It is noted that while the blower means of Arata et al. are rotatable in all directions, then, inclined or diagonally arrangement of the shaft of said blower means in said chambers are inherent capabilities of said device.

5. Claim 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Keizo (JP 07-142855).

Keizo discloses a reflow soldering apparatus comprising a conveyor ("11, 12", figure 1 and paragraph [0011]) to transport circuit boards mounted with electronic components ("10, figure 1, translation) into multiple inclined chambers (preheat section "21,22"; heating section "23,24" and cooling section "41, 42", figure 1 and paragraphs [0013]-[0014], of translation) and blowing means ("23b, 24b", figure 1 and paragraph [0013], of translation) installed in said chambers; wherein said blowing means are installed above and below said conveyor; wherein said blowing means are arranged in said chambers (abstract). Keizo et al. also shows an arrangement of said blower means in said inclined chambers, wherein the blowing means are oriented in a diagonal or in an inclined mode in the inclined chambers (see, inclined flow direction of arrows emanating from the blowing means, figure 1, of translation).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Deambrosio (US 5,069,380), Powis (US 4,674,475) and Matsumura et al. (US 5,579,981) are also cited in PTO-892.


Art Unit: 1725


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Aboagye whose telephone number is 571-272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AM
AM


JONATHAN JOHNSON
PRIMARY EXAMINER


Michael Aboagye
Assistant Examiner
Art unit 1725

10/05/2006